

Clingendael International Energy Programme

Annual Report 2008



Clingendael International Energy Programme (CIEP)

Affiliated to the Netherlands Institute of International Relations, 'Clingendael', CIEP acts as an independent forum for governments, non-governmental organisations, the private sector, media, politicians and all others interested in changes and developments in the energy sector.

CIEP organises lectures, seminars, conferences and roundtable discussions. In addition, CIEP staff members lecture in a variety of courses and training programmes. CIEP's research, training and activities focus on three themes:

- Regulation of energy markets (oil, gas, electricity) in the European Union;
- International economic and geopolitical aspects of oil and gas markets, particularly with respect to the European Union security of supply; and
- Energy and sustainable development.

CIEP is endorsed by BP, the Dutch Ministry of Economic Affairs, Eneco, Energie Beheer Nederland, Essent, the Dutch Ministry of Foreign Affairs, GasTerra, Nederlandse Gasunie, ING, NAM, NUON, Oranje-Nassau Groep, Port of Rotterdam, Shell Nederland, Total E&P Nederland, the Dutch Ministry of Housing, Spatial Planning and the Environment, Vopak Oil Europe Middle East, Wintershall and RWE.

CIEP publications and research results are made available primarily through the CIEP website: <www.clingendael.nl/ciep/>.

Title : CIEP Annual Report 2008
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Copyright : 2009 CIEP
Published by : Clingendael International Energy Programme
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Table of Contents	
Annual Report 2008	1
Introduction	2
Research and activities	4
Theme A – Regulation of energy markets (gas and electricity) in the EU	4
Energy Policy Meetings	5
Gas group	6
Theme B – International economic and geopolitical aspects of the oil and gas markets, mainly with respect to the security of oil and gas supply in the European Union, in the context of an increasing dependence on imported energy	7
Theme C – Energy and sustainable development	8
Projects	9
Clingendael Asia studies (CAS).....	9
Corus project	10
Curacao project	10
CeSSA – Coordinating Energy Security in Supply Activities project	10
PhD activities	10
World Energy Council (WEC)	11
Training programmes	11
Knowledge Centre	11
Network	11
CIEP supporting institutions	13
CIEP network	13
Internal organisation	14
Overview	15
CIEP publications	15
CIEP articles/papers	15
CIEP briefing papers	16
CIEP columns.....	17
CIEP activities.....	17
Training	20
Meetings.....	20
Lectures, Speeches and Presentations	20
Media.....	21
Website.....	21
Staff	22
Board of the Foundation Stichting Fonds Instituut Clingendael in 2008	22
Appendix 1: About CIEP	23
Appendix 2 Work plan CIEP 2009-2012	24
Appendix 3: 2008 external lectures by CIEP Staff	32
Appendix 4:	36
Energy lectures by CIEP staff for Clingendael courses	36



Clingendael International Energy Programme (CIEP) in 2008

Introduction

The international energy markets experienced a tumultuous year. Oil prices increased from the low \$90-ies per barrel early in January to a staggering \$147 per barrel on 14 July, only to crash to below \$40 per barrel in the Fall, when the impact of the financial crisis, dragged all energy markets down. Such extreme price volatility is exceptional, also in international oil markets .

In the run up to the financial market melt-down in September 2008, the depreciation of the dollar was to a large extent mirrored in the increase of oil prices and other commodity prices. Mounting concerns about energy security due to continued tight energy markets, were in 2008 accompanied by concerns about food security, when also agricultural commodities increased in price. The expansion of first generation bio-fuels, which were becoming more and more attractive with the increase of crude oil prices, were partly blamed for the market developments in agriculture. But it later appeared that energy and commodities were also actively traded because other sectors of the economy began to falter and energy (and commodity) trade served as a safe haven for deminishing returns and higher risks in other investments.

Already in late Spring of 2008, when oil prices crossed the \$120 per barrel threshold, it became clear that the run up in gasoline prices in the US and the depreciation of the dollar was having a serious impact on demand for oil and oil products. In other economies this effect was weaker due to appreciating currencies and/or subsidies on end-user energy products. Yet, oil prices continued to increase. Late June, King Abdullah of Saudi Arabia convened a conference in Jeddah to discuss the problems on international oil markets and called on producers and consumers to rally together to prevent prices from increasing further and damage energy markets and economic growth. The discussions centred on making additional barrels available to the market, the lack of spare capacity, the perverse effect on demand for oil in a tight market by subsidies (particularly those in large countries such as China and India), and the mounting investment insecurity because of uncertainties about future demand and supply levels. The latter was mainly related to the intensified planning to move away from fossil fuels. Another issue plaguing the international energy sector was the rapid increase in marginal costs, and the lack investment opportunities in medium cost producing countries, such as the Middle East and Russia, to balance investments in frontier oil and gas provinces, such as the Canadian tar sands and deep offshore. It is clear that the oil price increases were also due to wide array of underground and above ground problems which had contributed to tight markets.

Although the financial crisis and the ensuing sharp economic downturn have abruptly made an end to the very tight energy markets, the underlying problems that surfaced prior to the sharp downturn have not disappeared. The issues discussed at the Jeddah conference can easily resurface when world economic growth recovers. The IEA warning that in the period 2010-2020 serious shortages could lead to a crunch is not off the table. The drop in demand is mirrored in a drop in investments, while depletion ratios are increasing. The IEA warned in its WEO 2008 that two new Saudi Arabia's were needed satisfy future oil demand.

The challenge that lies ahead is manifold. New oil and gas resources need to be developed for the market, not only to compensate for maturing fields, but also to satisfy new demand from developing countries. At the same time, the speed and the size with which alternative resources, such as biofuels, can be developed will decide not only the liquid balance, but also investment opportunities, the political economy of import dependency and price. The economic crisis perhaps delays but does not solve any of the underlying fundamental problems.

For Europe the challenge is doubly complicated because of increasing uncertainties about gas supplies. Although LNG increasingly offers new opportunities to attract supplies, the dependence on Russian pipeline supplies remains large. The political tensions in the EU-Russia relationship remained worrisome. The conflict with Georgia, the Great Game in the Caspian region, including the competition for strategic importance by the US and China, the internal EU disputes about pipeline routes, the membership of NATO of former soviet states, such as Ukraine and Georgia, the slumbering conflict over Moldova, the internal political and economic problems in the Ukraine have created a melting pot of irritations, conflicts over the near abroad/neighbourhood policies, and are serious rifts in a relation between important energy partners. Russia is structurally income dependent on energy sales in the EU and the EU is aware of its growing dependency on gas imports from Russia.

Fundamental changes in the global structure of energy supply and demand are also profoundly needed to meet the challenges posed by man-made climate change. Technology development and improved international cooperation can jointly contribute to closing the present geopolitical and geo-economic gaps that impede such a global transition to a low-carbon energy economy. For that purpose, it should be recognized that countries have different interests and drivers with respect to need and speed for energy transition. Fossil energy producers on the other hand wish to capitalise on their underground riches. Uncertainty about the introduction of new fuels can lead to reluctance to invest as long as climate negotiations are pending. Environmental motives, security of supply considerations or economic development aspirations are all equally valid drivers on the path to a global low-carbon energy economy.

Research and activities

CIEP continued largely in the same vein as in 2007, based on the plan and estimated budget as described in *CIEP 2005-2008, Towards a European Forum*, and as agreed upon by the Board of Stichting Fonds Instituut Clingendael and the participating institutions. In 2008, the work plan CIEP 2009-2012 was issued which served as the basis for further public funding (*Energy: Between a Rock and a Hard Place*) (Appendix 2).

Energy continued to feature prominently on the political agenda in 2008 and was also covered extensively in the media. Among the prominent European institutes dedicated to the study of energy matters and international relations, demand for CIEP's expertise is growing. Representatives of European countries often consult CIEP on European energy security issues, as well as for matters regarding the operation of energy markets. Requests for lectures and interviews have again increased.

Research results were jointly discussed and developed in brainstorming groups where various energy sector stakeholders meet. These brainstorming groups bring together academic, policy and business knowledge and are instrumental for setting the agenda for CIEP's activities. The brainstorm groups have not only become a powerful instrument for research, they are also an integrated part of the CIEP platform function, illustrating CIEP's role as a network organisation and contributing to CIEP as a knowledge centre.

CIEP's 2008 research covered three interlinked themes:

- A. Regulation of energy markets (oil, gas and electricity) in the European Union;
- B. International economic and geopolitical aspects of the oil and gas markets, mainly with respect to the security of oil and gas supply in the European Union, in the context of an increasing dependence on imported energy; and
- C. Energy and sustainable development.

Theme A – Regulation of energy markets (gas and electricity) in the EU

Research and activities with regard to gas and electricity focussed on the evolving organisation structure of the EU energy market. The EU energy situation is set in a global context and due to the growing import dependence on non-EU energy suppliers, also includes energy supply security and the conditions to meet them. Supply security in an increasingly globalising geopolitical setting. A setting where governments and politics are key, as they are balancing their energy supply policies with their environmental and climate change commitments, together with their ambitions to use competitive market forces wherever possible. A setting where fossil fuels like oil and gas will increasingly be substituted by more sustainable energy sources as fuels for the economy. A substitution process that is not without pains and that would require mutual understandings between the EU and its major energy suppliers in line with more global relations between the EU and its fellow consuming regions. This process is therefore in itself a major challenging adventure for the EU in formulating its policy, internal and external, to cope with the energy/environmental/economic equation. A challenge for the EU and its institutions, but even more so a challenge for its stakeholders, the national member states.

The interaction between regulatory measures at the national and the EU level and the strategic market behaviour of some of the large market participants is one of the areas that CIEP studied.

Energy Policy Meetings

Publications and activities have been initiated in part and supported by the discussions in the CIEP Energy Policy Group (EPM). The Energy Policy Meetings look to address relevant energy policy issues for policy makers, industry representatives and the interested public at large as part of the mission of the Clingendael International Energy Programme to facilitate dialogue and discussion among relevant stakeholders in European and Dutch energy markets.

In 2008 four Energy Policy Meetings were organised.

I: Mind the Oil Gap: The International Energy Agency's World Energy Outlook published in November 2007, noted a possible "Supply-side Crunch". The Energy Policy Meeting: "Mind the Oil Gap?" held on February 14th 2008, focussed on this oil supply crunch and tried to clarify the various views on the future of the world oil supply. CIEP invited two explicit representatives from the various views, first of all Mr. David Fyfe, Principal Analyst - Global Oil Supply of the International Energy Agency, who focussed predominantly on the above ground factors that could limit future oil supply. To add the geological perspective Mr. Colin Campbell, petroleum geologist and founder of the Association for the Study of Peak Oil and Gas, was invited to share his views on the geological risks that limit future oil production.

II: Energy in the WTO: The investment needs of the energy sector are huge, estimated by the IEA to be \$22 trillion by 2030 alone. One of the keys to adequate energy production and infrastructure investment is setting the rules on energy investment, transmission and trade. Apart from the North America Free Trade Agreement (NAFTA) and the Energy Charter Treaty (ECT), there is no global agreement on such rules. The rising number of energy-producing countries joining the WTO, such as Saudi Arabia, Oman, Algeria, Libya, Russia, Kazakhstan, and Azerbaijan will increase the share of energy trade under the WTO framework. WTO rules seem therefore to be in need of a fundamental review. To explore these issues the Clingendael International Energy Programme organised an Energy Policy Meeting on the role of the WTO in future energy relations on April 1st 2008. Speakers at this event were Mr. René Strik of the Netherlands Ministry of Economic Affairs, Mrs. Yulia Selivanova of the Energy Charter Secretariat, and Prof. dr. Peter van den Bossche, Professor of International Economic Law at the Maastricht University.

III: European Electricity and Gas markets: The Way Forward: Ten years have passed since the start of the liberalization process. New discussions and new challenges have emerged that makes it necessary for us to rethink the market paradigm. Supply security, sustainability perspectives, regional energy markets, the role of carbon-pricing are issues that are among the most dominant ones in rethinking the balance between governments and markets. The seminar reflected on the 1998 expectations, reviewed the 2008 deliverables and explored the wider policy dimensions that will influence EU energy markets. During the Energy Policy Meeting, that followed a one-day conference, a group of international experts discussed the required focus of energy regulation. Regulation was discussed both in terms of deepening and broadening. Deepening when it comes to market issues, designs and the regional approaches. Broadening when it comes to regulatory roles and mandates following changing energy policy paradigms.

IV: A Nuclear Renaissance in the European Union?: This Energy Policy Meeting was organised by CIEP on December 4th 2008 and focussed on the political, economic and public aspects of a resurgence of nuclear in the electricity mix of EU member states. The Energy Policy Meeting therefore focussed on the outlook for Nuclear power in various key EU member states, and the role that the European Commission could, should or should not play in facilitating this expansion. In addition the Dutch perspective was taken into focus by a speech from Mr. Peter Boerma, CEO of Delta Energy, which has announced its intentions to expand its nuclear generation capacity in Borssele. In addition CIEP's Senior Fellow Jacques de Jong provided an overview of current European Member States attitudes toward nuclear power, while Mr. Jean-Paul Poncelet Senior Vice-President from Areva provided an industry perspective on the deliverability of nuclear power in the near future.

Gas group

All research and activities of CIEP on gas-related matters were supported in 2008 by regular meetings of CIEP's gas group. This group of experts from CIEP's supporting institutions currently has some 25 regular members. The group assists in setting the CIEP agenda on gas issues, acts as a sounding board for CIEP's activities related to natural gas, contributing, where possible, to these activities, and facilitates the exchange of information and views between the experts involved.

During 2008 working groups out of the gas group were active contributing to the evaluation of the following topics:

- a) the pricing structures of natural gas in Continental Europe. This paper was published in January;
- b) the future of gas exploration and production in The Netherlands, by which the paper was published in June;
- c) the role of pipeline gas and LNG in the future European gas supply. This project was two-tiered; a paper was written on the role of LNG in the EU gas market for a project/ study for DGTREN and this CIEP contribution to that project was developed into a larger paper, which on the role of pipeline and LNG gas for the European gas supply was published in August 2008, and presented at the CIEP Gas Day, on 3rd September;
- d) the state of the art and the potential of carbon capture and storage (CCS) as an emission abatement option for the Netherlands. In July CIEP organised an expert workshop dealing with this subject and published a paper in September;
- e) the current status and the further development of the European gas transmission network. It is expected that a paper on this subject will be published in the summer of 2009.

The meeting dates of the CIEP Gas Group were 15 January, 7 February, 18 March, 10 April, 10 June, 15 October, and 12 December 2008.

The International Gas Union (IGU), under the 2006-2009 presidency of Argentina, is involved in the Gas Market 2030 Outlook study, in which Coby van der Linde participates, in her capacity as a member of the wise person group and member of the steering committee. Dick de Jong is also a member in the steering committee. In this manner, CIEP remains active in the research work of IGU.

Relations with Russia and gas supplies from this country and the countries around the Caspian Sea, including the new pipeline routes, remained a key area for CIEP. An ongoing project on pipeline routes is still underway and should reach a final stage in the second half of 2009.

A study on company strategies of European gas companies both in the context of EU developments and international developments on the gas market, and government strategies towards their domestic gas industries is reaching an end stage and will be issued in 2009.

On the many issues arising from the discussion on the new European Energy Policy plans, CIEP continued following the discussions and brought CIEP's views on standards for security of supply, gas market regulation, energy value chain management, external EU energy policy, nuclear energy, etc., closer to the European policymaker.

Theme B – International economic and geopolitical aspects of the oil and gas markets, *mainly with respect to the security of oil and gas supply in the European Union, in the context of an increasing dependence on imported energy*

Relations with Russia continued to feature high on the research agenda, including for oil and gas supplies from Russia, pipeline politics in the CIS and investment policies and strategies in the CIS. Work on security of gas supply is a central theme. Both the Phd project, the work of the Gas group and a wide array of presentations and articles have continued to be core activities under this research theme.

Security of supply has gained prominence on the EU policy agenda, but so far has not resulted in a consistent position. Most EU discussions on security of supply are centred on natural gas, and Russian natural gas in particular. The Ukrainian gas crisis of 2006 was a major catalyst for the security of supply discussion. The relationship with Russia, the issues on new membership of NATO, the growing instability in the Caucasus, the relation with Turkey (Nabucco), all have a major energy element. The EU security of supply discussion is, unlike in the US and China where oil dominates the security of supply policies, hardly ever about oil security of supply, despite the turbulent developments in 2008. The divergence in priorities have led to complicated geopolitical relations, which spill over into the internal market discussions, and the climate change strategies.

Based on earlier CIEP studies on geopolitical scenarios and energy, research into the shifting flows in the oil market is an important subject for the oil discussion group. An essay on 'High Oil Prices in a Supply-constrained World' (*Oil Turbulence in the Next Decade*) was published in July 2008 just before the major oil price 'slump' of the second half of 2008. The development of demand and supply for crude oil is indicating that the mismatch in growth could cause tighter markets than we already experience today in the next decade. In the World Energy Outlook 2007 the International Energy Agency (IEA) was warning for a possible 'energy crunch'.

In January, CIEP contributed to a conference of IFRI, the French sister institute on international relations of Clingendael. The theme of the conference was European Energy Security. CIEP prepared a paper that served as a kick off for the conference discussions. The paper (*Turning a Weakness into a Strength: A Smart External Energy Policy for Europe*) explored the need and hurdles for an EU external energy policy. In the Spring, this project

was continued with a contribution to a SIEPS (Sweden) debate, and another paper (*EU Energy Policy in a Supply-constrained World*) was prepared and presented in the Fall.

The CIEP Asia project covers energy-related developments occurring in Asia or resulting from major Asian economies' rapidly increasing demand for energy (see Clingendael Asia studies, below).

Theme C – Energy and sustainable development

CIEP's research theme "Towards a low-carbon energy sector" is structured around two key areas: global energy power shifts and EU policy and energy transition.

Transition to a global low carbon energy sector will almost certainly involve major changes in existing international energy relations. For some countries, these changes will be positive; for others negative. The result of these power shifts might be that 'old' political tensions will be resolved, but that new political tensions may replace them. The focus of this research is to identify the kinds of power shifts that might occur, to what extent these changes might give rise to tensions, and how these tensions can be prevented from becoming conflicts.

Energy policy has long been a topic of EU policy discussions. In January 2007 the EU took a new step in energy policy with its long-awaited "Energy Policy Package" in which, for the first time, the EU presented an approach to balancing the overall energy policy targets of affordability, reliability and climate change mitigation. However, national interests make it difficult for the EU to promote a single vision and external policy regarding energy. Also, an overall vision on how to achieve a long-term energy transition within the EU is still lacking. The aim of this research is to examine what should be included in feasible political strategies for an energy transition in the EU, both internally and externally, and perhaps in a coalition with others.

The Global Energy Transition & International Politics (GETIP) discussion group organised four meetings. Overarching topic of the GETIP group meetings in 2008 was the role of the European Union as an actor in facilitating a worldwide energy transition.

19 March - The EU "Green package" - Luc Werring (DG TREN), Sanjeev Kumar (WWF Brussels), Hans Grünfeld (VEMW);

29 May - EU India energy relations - Joyeeta Gupta (Free University Amsterdam), Olga Sihmane (DG TREN);

9 September - Energy innovation in the EU - Estathios Peteves (JRC Institute for Energy), Bert Stuij (SenterNovem);

3 December - Fossil fuels and energy transition in EU policy - Stephan Slingerland (Ciep), Reinout Vos (Ministry of ForeignAffairs);

Projects

Clingendael Asia studies (CAS)

CIEP Asia studies address energy-related developments that occur in Asia or result from major Asian economies' rapidly increasing demand for energy. The focus of the three Asia projects includes aspects that are also relevant to European policymakers and multinational energy companies. The first project focuses on the possible diversification of Russian oil and gas supplies towards East Asia and China's energy cooperation with Central Asia countries. The second project examines the economic and geopolitical consequences of China's and India's quest for oil in Africa. The third project assesses the reforms underway in China's and India's power sectors and policy initiatives in both countries that aim at the transition to a low carbon economy.

In January 2008, an international research conference entitled 'The Geopolitics of Energy in Eurasia: Russia as an Energy Lynch Pin' was organised. The EU-27 is becoming increasingly dependent upon external energy supplies. Russia plays a crucial role as a supplier to European energy markets. Currently, the EU countries import about 26% of their oil consumption from Russia and 29% of their natural gas consumption. As a result, energy has become a key issue in the relations between the EU and Russia.

The EU has put much effort in the establishment of the internal energy market. However, there is still no common foreign energy policy. The demise of the Soviet Union had raised expectations that market mechanisms could ensure sufficient energy supplies for consumers in the EU more efficiently. But counter to mainstream expectations of the 1990s, today's energy relations with producer countries are increasingly determined by geopolitics, in particular those relations with Russia and the countries of Central Asia.

Lacking from the discussion in Europe are the effects of forecasted demand growth in East Asia, and those economies' interests in Russian and Central Asian energy resources. But the possibilities beholding Asia's continued economic development have not been lost on Russia. Russia has announced plans to diversify oil and gas exports in order to decrease Russian dependence on the European market and to profit from the economic development in East Asia. Russian politicians and representatives of Russia's state-controlled energy corporations frequently point to the growing markets along the country's eastern borders.

These developments lead to a range of questions that deserve wider discussion in Brussels: How should we interpret Russian attempts to diversify supplies to customers in the East from a European security of supply perspective? Will Russia be able to balance the supplies between Europe and East Asia? Is there sufficient investment to realise the potential of future gas and oil supplies? How will gas exports from Central Asia to China affect Russia's gas balance and its ability to fulfil its contracts with European clients?

In changing panels, this two-day conference assessed several aspects of the energy relations between the EU and Russia on the one hand and the beginning cooperation between Russia and its eastern neighbours on the other hand.

Corus project

Corus Netherlands asked the Clingendael International Energy Programme and CE Delft to investigate how ambitious climate targets and a level playing field for competition can go hand in hand in the global steel sector. In the report ‘The Climate for Steel: Actions for, and conditions to, a Copenhagen climate agreement from the perspective of the EU steel sector’ (issued in 2009) it is concluded that a global sectoral agreement that builds on the existing voluntary initiatives of the steel sector and simultaneously fits with ideas of countries proposed in the Copenhagen climate negotiations, is the best scenario for the sector in an international climate agreement. Crucial is the participation of the key steel producing countries and regions. If a sectoral agreement will not be part of an international climate agreement, it will become far more difficult to set conditions for a level playing field for competition in the agreement. In that case clear statements about long- and short term targets, technology transfer, sectoral initiatives and measurability, reportability and verifiability of actions are some of the key preconditions to an agreement.

Curacao project

In 2007, CIEP commissioned a study for the Isla refinery in Curacao on exploring options and processes for defining an energy policy for the island. The study was undertaken in cooperation with the Institute for Environmental Issues (IVM) of the Amsterdam VU University. A number of stakeholders were interviewed about their ideas and concerns with respect to the Curacao energy situation in general, and the role of the Isla refinery in particular. The study proposed not only an inventory of all relevant issues to be taken into account, but also focussed on a road map for a dialogue process with all relevant parties and stakeholders. As a follow-up, a more detailed proposal was sent to Willemstad, with IVM taking the project lead and CIEP together with Delft University of Technology (TU Delft) as partners. Isla and its owner, the Curacao council, have agreed to this proposal and some energy scenarios for the island were developed. Also a number of workshop sessions in late 2008 were held to discuss these options. The output of the project is an advice to the council on the possibilities of a Curacao energy policy, and includes a road map for further development and implementation.

CeSSA – Coordinating Energy Security in Supply Activities project

CeSSa is a large EU-funded research cooperation project with among others, UdP-France; Comillas-Madrid; Oxford University; DIW-Berlin. CIEP was responsible for a study on security of gas supply. This draft report was submitted in August 2007 and the final report was issued in 2008.

PhD activities

Besides the regular research and activities of CIEP on gas-related matters, CIEP supports currently two PhD gas research projects under supervision of Prof. dr. Coby van der Linde

and two professors from the University of Groningen in the department of Arts and department of Economics respectively. The two PhD candidates – Timothy Boon von Ochssée and Tom Smeenk – focus their research on the international economic and geopolitical aspects of the gas markets with an emphasis on Russia. Timothy concerns itself with international cooperation between gas exporting countries (also with a focus on Russia) and Tom explores the investment policy of the Russian gas industry along the gas value chain. Regarding different parts of their theses they are working together, since they apply the same (theoretical) framework.

World Energy Council (WEC)

CIEP traditionally hosts the Netherland's World Energy Council (WEC NL) board meetings and one CIEP staff (Lucia van Geuns) is a member of the board. CIEP contributed to national and European preparatory discussions and analyses on the forthcoming WEC-scenarios to 2050.

Training programmes

In 2008, Ciep organised two training days open to the general public: Geopolitics of energy (6 March) and EU energy policies (7 May).

In addition, several tailormade training programmes were offered: a one-week introduction into Dutch and EU energy policy to two Bulgarian diplomats (May 2008), a three-day training course focusing on energy and climate change to Dutch junior diplomats (May 2008) and a training on energy security to the EU JRC centre Institute for Energy in Petten (November 2008).

CIEP staff lectured in Clingendael Institute courses, and also for the Energy Delta Institute, Groningen University and Delft University of Technology and in a series of events throughout the year (see Appendices 3 and 4). CIEP was also involved in developing an executive Master programme in Gas Business of the Energy Delta Institute. The Master programme started mid-2007 and has deliver its first graduates in 2008.

Knowledge Centre

An important task for CIEP is to provide the general public with information on energy related topics. This is achieved in part by CIEP's own activities and publications, but also by giving public lectures and interviews to the media. In 2008, over 175 presentations, lectures and interviews were given by CIEP staff. Further, the CIEP website served as an important source of information on publications, activities and training programmes.

Network

CIEP is primarily a network organisation. CIEP is a small organisation and does not intend to compete with other energy oriented knowledge centres, but rather works to complement and cooperate with many of these institutions. Positioned between the private sector and public institutions, between scientific research organisations and consultants, CIEP strives to achieve its mission and objectives via cooperation across its extensive network.

CIEP has initiated discussions between different experts across its extensive network. For example meetings between energy and environmental experts and energy and security experts have served as sounding boards for new issues in international and national energy. The various study groups and meetings with CIEP supporting institutions are also network events.

CIEP supporting institutions

In 2008, CIEP was supported by the following institutions:

- Dutch Ministry of Economic Affairs (EZ)
- Energie Beheer Nederland (EBN)
- Gasunie
- Gasterra
- ING Group
- Nederlandse Aardolie Maatschappij BV (NAM)
- N.V. NUON
- Oranje-Nassau Energie BV
- Total E&P Nederland BV
- Port of Rotterdam
- Shell Nederland BV
- Dutch Ministry of Housing, Spatial Planning and the Environment (VROM)
- Vopak Oil Logistics Europe & Middle East B.V.
- Essent
- Eneco
- BP
- Wintershall
- Dutch Ministry of Foreign Affairs (BZ)
- RWE Nederland (*since 1.1.2007*)

These institutions are a cross-section of energy sector stakeholders in the Netherlands. The companies are major international players in their field of expertise. The public institutions understand that national energy policy is largely influenced by international developments. The institutions contribute to CIEP's knowledge base and *vice versa*, especially within the CIEP Advisory Board and the Contact Group. Furthermore, staff members from the institutions participated actively during 2008 in CIEP research and study groups, such as the Gas Study Group, the Oil Discussion Group, the GETIP Group and the Energy Policy Discussion Group.

CIEP network

Within the Netherlands, CIEP has working relationships with a wide variety of institutions, including:

- Energy Delta Institute (EDI)
- Energy research Centre of the Netherlands (ECN)
- International Institute for Asian Studies (IIAS)
- Technical University Delft (TUDelft)
- Centrum voor Energiebesparing (CE Delft)
- Netherlands Environmental Assessment Agency (MNP)
- Algemene Energieraad (AER)

Internationally, the CIEP network spans the following institutions:

- European Policy Centre (EPC)
- Royal Institute for International Affairs (RIIA, Chatham House)

- Oxford Institute for Energy Studies
- European University Institute Florence
- Institut Français des Relations Internationales (IFRI)
- DGTREN (European Commission)
- International Energy Agency (IEA)
- Columbia University (New York)
- Yale University Business School
- The Judge Institute, Cambridge University, UK
- World Energy Council (WEC)
- Moscow State Institute of International Relations (MGIMO)
- Waseda University (Japan)

Internal organisation

CIEP continued to administer the allocation of staff and budgets to the different public activities, research projects and other activities in a transparent way. In this way, CIEP uses time registration (BigBen software) which facilitates prioritising time and assets.

Overview

CIEP publications

The following overview highlights a selection of publications, most of which are available on the CIEP website. CIEP (associated) staff also published articles in newspapers, scientific journals and other formats that are not mentioned here.

CIEP articles/papers

Pricing Natural Gas: The Outlook for the European Market, CIEP Energy Paper, The Hague, Clingendael Institute, January 2008

Geopolitiek spel om energiecorridors, Jan-Hein Chrisstoffels, Susann Handke en Coby van der Linde Article, Geografie, januari 2008

Toenemende spanning op de oliemarkt: crisisvoorraden geen oplossing!, Lucia van Geuns en Warner ten Kate Article, Magazine Nationale Veiligheid en Crisisbeheersing, February 2008

Globalisering van het Chinese banksysteem, Susann Handke, Internationale Spectator, maart 2008

Turning a Weakness into a Strength: A Smart External Energy Policy for Europe, Coby van der Linde Article, Paris, IFRI Note, April 2008

Crude oil demand, refinery capacity and the product market: Refining as a bottleneck in the petroleum industry, Wouter Pieterse and Aad Correljé, CIEP Energy Paper, The Hague, Clingendael Institute, April 2008

Bedrijfsbelangen Gazprom in EU-27 in 2007, Jochem Meijknecht CIEP, The Hague, Clingendael Institute, April 2008

The 2007 Energy Package: the start of a new era?, Jacques de Jong in: European Energy Law Report V, Martha Roggenkamp & Ulf Hammer (ed.). Antwerpen, Intersentia, 2008

Van zwarte naar groene energie: geopolitiek van mondiale energietransitie, Stephan Slingerland, Lucia van Geuns en Coby van der Linde, Article, Internationale Spectator, mei 2008

Metamorfose van de kolensector: van vies naar schoon?, Stijn van den Heuvel, Article, Internationale Spectator, mei 2008

Lichten op groen in de Amerikaanse klimaatdiscussie?, Warner ten Kate, Article, Internationale Spectator, mei 2008

Oil turbulence in the next decade, Jan-Hein Jesse and Coby van der Linde, CIEP Energy Paper, The Hague, Clingendael Institute, July 2008

The future of the worlds oil supply, Warner ten Kate en Lucia van Geuns in: European Energy Review 5, July/August 2008

The Gas Supply Outlook for Europe. The Roles of Pipeline Gas and LNG, CIEP Energy Paper, The Hague, Clingendael Institute, August 2008

Carbon capture and storage: A reality check for the Netherlands, CIEP Energy Paper, The Hague, Clingendael Institute, September 2008

EU Energy Policy in a Supply-constrained World, Jacques de Jong en Coby van der Linde, article for SIEPS Sweden, October 2008

The Energy Story: A Key Common Interest, Jacques de Jong in: The European Union and Russia: Perception and Interest in the Shaping of Relations, André Gerrits , Max Bader, Marcel de Haas, Jacques de Jong en André Gerrits (Summary) Clingendael European Paper November 2008, The Hague, Clingendael Institute, November 2008, 93 pp., ISBN 978-90-5031-132-8

Energy and Climate: Bridging the Geopolitical Gaps, Stephan Slingerland en Stijn van den Heuvel in: Challenges in a Changing World: Clingendael Views on Global and Regional Issues. The Hague, T.M.C. Asser Press, December 2008

Turmoil on the International Oil Markets: Getting used to Production Capacity Constraints, Lucia van Geuns en Warner ten Kate in: Challenges in a Changing World: Clingendael Views on Global and Regional Issues. The Hague, Asser Press, December 2008

CIEP briefing papers

The Third EU Energy Market Package: Are We Singing the Right Song?, Jacques de Jong CIEP Briefing Paper 8, The Hague, Clingendael Institute, February 2008

US Nuclear Industry Back in the 'Fast Lane'?: Keeping nuclear in the future energy mix, Warner ten Kate CIEP Briefing Paper 9, The Hague, Clingendael Institute, April 2008

The Dutch Upstream Fiscal Regime in Northwest European Context, CIEP Briefing Paper 10, The Hague, Clingendael Institute, June 2008

A Green Light for the American Climate Discussion?, Warner ten Kate, CIEP Briefing Paper 11, The Hague, Clingendael Institute, May 2008

The Securitization of Energy on the Eurasian Continent, Bas Percival, CIEP Briefing Paper 12, The Hague, Clingendael Institute, July 2008

Third follow-up on briefing paper number 3: Moving beyond the stalemate:, Ruud Lubbers, CIEP Briefing Paper, Clingendael Institute, October 2008

CIEP columns

The columns appearing in Energie Nederland (Energy Netherlands) are written by Coby van der Linde. Together with her bi-monthly columns for the new Journal European Energy Review, they can be found on the CIEP website (<http://www.clingendael.nl/ciep/publications/columns/>).

CIEP activities

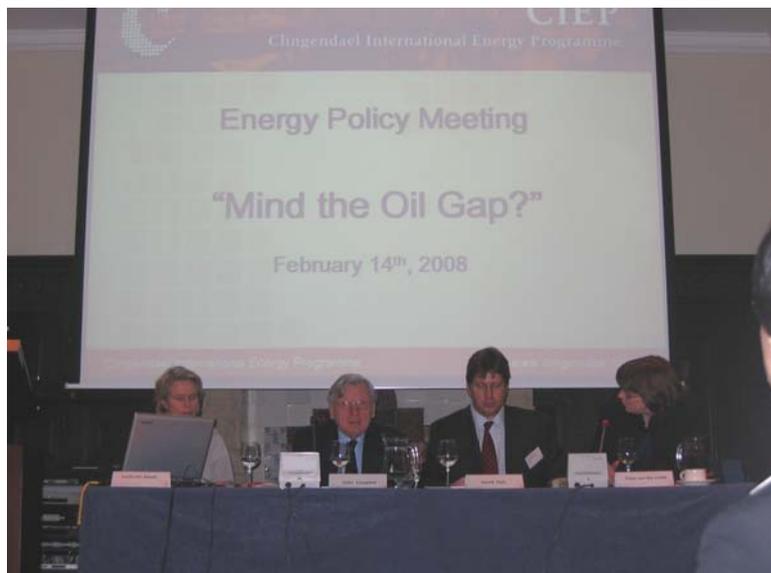
CIEP organised numerous activities (meetings, training programmes, conferences, etc.) during 2008. A listing is given below (see also <http://www.clingendael.nl/ciep/events/2008/>)

18 January 2008 - TNO/CCSS/CIEP Seminar on the Security of Energy Supplies - A Role of NATO and other International Organisations
<http://www.clingendael.nl/ciep/events/20080117/>

22, 23 January 2008 - two-day CIEP/CAS conference on the Geopolitics of Energy in Eurasia: Russia as an Energy Lynch Pin
<http://www.clingendael.nl/asia/events/20080122/>

24 January 2008 - Climate Change after Bali
<http://www.clingendael.nl/ciep/events/20080124/>

14 February 2008 - CIEP Energy Policy Meeting “Mind the (Oil) Gap?!”
<http://www.clingendael.nl/ciep/events/20080214/>



7 March 2008 - Clingendael Energy Lecture: Guy Caruso administrator of the US Energy Information Administration (EIA) "New Directions in U.S. Energy Policy-making"
<http://www.clingendael.nl/ciep/events/20080307/>

19 March 2008 - CIEP Informal GETIP Group Meeting "The EU Green Energy Package"
<http://www.clingendael.nl/ciep/events/20080319/>

1 April 2008 - CIEP Energy Policy Meeting: "Energy in the WTO?"
<http://www.clingendael.nl/ciep/events/20080401/>

10 April 2008 - CIEP seminar: "Carbon Capture and Storage: Linking EU policy aspiration with business initiatives?" <http://www.clingendael.nl/ciep/events/20080410/>



20 May 2008 - CIEP China Africa energy relations
<http://www.clingendael.nl/ciep/events/20080520/>

22 May 2008 - Clingendael Energy Lecture: Maria van der Hoeven, Minister of Economic Affairs of the Netherlands: on the Dutch Energy rapport
<http://www.clingendael.nl/ciep/events/20080522/>



29 May 2008 - GETIP meeting - Energy Transition in EU-India Relations
<http://www.clingendael.nl/ciep/events/20080529/>

7 June 2008 - Open Dag Clingendael



3 July 2008 - Expert workshop "Carbon capture and storage: a reality check for the Netherlands" 3 July 2008

<http://www.clingendael.nl/ciep/events/20080703/>

3 September 2008 – CIEP Gas day <http://www.clingendael.nl/ciep/events/20080903/>

9 September 2008 – GETIP meeting: EU and national energy innovation

<http://www.clingendael.nl/ciep/events/20080909/>

1 October 2008 - CIEP Energy Policy Meeting: "The BP Statistical Review of World Energy 2008" <http://www.clingendael.nl/ciep/events/20081001/>

6 October 2008 - CIEP Seminar "Energy Market Liberalisation: 1998-2008 and beyond"

<http://www.clingendael.nl/ciep/events/20081006/>

7 October 2008 - Energy Policy Meeting: Workshop: Smart energy policies for Europe

21 October 2008 - CIEP GETIP GROUP "The EU and Energy Efficiency: A Successful Approach in the Built Environment?" (cancelled)

<http://www.clingendael.nl/ciep/events/20081021/>

3 December 2008 - GETIP Meeting: "The Role of Fossil Fuels in a Low-Carbon Economy"

<http://www.clingendael.nl/ciep/events/20081203/>

4 December 2008 - Energy Policy Meeting: "Nuclear Renaissance in the European Union?"

<http://www.clingendael.nl/ciep/events/20081204/>

10 December 2008 - Clingendael Energy Roundtable: "Pipeline Politics: oil, gas and people in the Arctic" <http://www.clingendael.nl/ciep/events/20081210/>

10 December 2008 - Clingendael Energy Roundtable: "Norwegian Energy Perspectives"

<http://www.clingendael.nl/ciep/events/20081210b/>

12 December 2008 - The Clingendael Energy Roundtable "Russia in a Changing World"
<http://www.clingendael.nl/ciep/events/20081212/>

16 December 2008 –“The financial crisis and energy” lecture by the Duisenberg Instituut, Amsterdam

Training

6 March 2008 - Geopolitics of Energy
<http://www.clingendael.nl/ciep/training/energy/geopolitics/>

7 May 2008 - EU Energy Policies
<http://www.clingendael.nl/ciep/training/energy/europe/>

CIEP also offered training programmes customised to particular needs and interests:

- Three-day Energy Megacasus ‘Energy Geopolitics’ for Young Dutch diplomats (Campus The Hague), 18-20 June 2008
- One-week introduction into Dutch/EU energy policy to two Bulgarian diplomats, 6-9 May 2008
- One-day Energy workshop for the EU JRC centre Institute for Energy in Petten, 28 November 2008

Meetings

- The *CIEP Contact Group* convened on 11 March, 3 June, 14 October, 2 December 2008
- The *CIEP Advisory Board* convened on 24 June, 16 December 2008
- The Board of *Stichting Fonds Instituut Clingendael* convened on 8 April, 22 May, 1 December 2008
- Gasgroup: monthly meetings
- Oil group: quarterly meetings
- Energy Policy meetings: 4 meetings in 2008
- Global Energy Transition & International Politics (GETIP): 4 meetings in 2008

Lectures, Speeches and Presentations

During 2008, CIEP staff members gave a total of 130 lectures, speeches, and presentations or chaired sessions during training courses, conferences and seminars (a selection of the external lectures are listed in Appendices 3 and 4)

Media

CIEP staff members gave over 85 interviews for radio, television and newspapers during 2008.

Website

All publications and/or reports of CIEP (associated) staff can be found at <http://www.clingendael.nl/ciep/publications>. Internet is an important communication tool for CIEP. In 2008, 513,132 hits were recorded and 126,437 downloads. The most popular page was <http://www.clingendael.nl/ciep/publications/>.

Staff

In 2008, the CIEP staff comprised twelve people:

Coby van der Linde	director	(0.7 fte)
Lucia van Geuns	senior researcher/deputy	(0.8fte)
Stephan Slingerland	senior researcher	(0.8fte)
Susann Handke	researcher	(0.8fte) (until 01-04-2008)
Warner ten Kate	researcher	(1.0 fte)
Stijn van den Heuvel	researcher	(1.0 fte)
Jan-Hein Chrisstoffels	researcher	(1.0 fte) (until 01-07-2008)
Tom Smeenk	researcher	(1.0 fte)
Bas Percival	researcher	(1.0 fte) (from 01-07-2008)
Tim Boon von Ochssee	researcher	(0.2 fte) (from 15-09-2008)
Wendy Auf dem Brinke	secretary	(0,6fte)
Caroline van Ophem	administrator	(0.4fte) (April to Nov. 2008)

In addition to the core staff, CIEP has three fellows and three associate fellows:

Jacques de Jong	seconded senior research fellow	(0.8 fte)
Dick de Jong	senior research fellow	(0.2 fte)
Luc Werring	senior research fellow	(project basis)
Aad Correlje	associate fellow	(0.2 fte)
Reinaldo Figueredo	associate fellow	(project basis)
Dirk Bendsdorp	associate fellow	(project basis)

Other functions held by CIEP staff members:

Coby van der Linde	Part-time Professor of Geopolitics and Energy Management, University of Groningen Member of the Dutch Energy Council Member of the Supervisory Board of Wintershall Nederland B.V. (WINL)
Lucia van Geuns	Member of the board of the World Energy Council Netherlands (WEC NL) Member of the Earth and Lifesciences Council (RAL) of the Royal Netherlands Academy of Arts and Sciences (KNAW)

Board of the Foundation Stichting Fonds Instituut Clingendael in 2008

Drs G.H.B. Verberg, president
Mw M.E.R. barones de Vos van Steenwijk-Groenenveld, vice-president
Drs H.D.A. Haks RA, treasurer
Mr W.F. Dutilh, member
Mr W.O. Russell, member

Appendix 1: About CIEP

Introduction

In September 2001, the Netherlands Institute for International Relations, 'Clingendael', launched the *Clingendael International Energy Programme* (CIEP). Supported by twelve institutions from the public and private sectors, CIEP participates in and seeks to make significant and substantive contributions to the public debates on national and international developments in the energy sector. After the initial period 2001-2004, CIEP continued largely on the same footing as the previous years based on the plan and estimated budget as described in the document *CIEP 2005-2008, Towards a European Forum* and agreed upon by the Board of Stichting Fonds Clingendael and seventeen participating institutions.

The main reasons for initiating CIEP were:

1. The need for a forum to discuss developments in the European energy markets, e.g. the liberalisation of the European energy market, which will impact the organisation of the market, government energy policies and strategies of companies operating in the energy sector. These changes in the internal European market take place against the backdrop of an expanding European Union, increased dependency on imported fossil fuels and efforts to address environmental concerns;
2. The concerns raised in public debates about security of supply and a growing import dependency, not only for European Union member states but also for other major consumer regions. These concerns will influence the policy options and choices of both consumers and producers. The political and economic developments in, for instance, the United States, Russia, the Middle East, the Caspian Sea region, and Asia, are therefore important in assessing the developments in the European energy situation.

Mission

Through research, the publication of studies, information releases (particularly through the media and internet) and the organisation of courses and training programmes, CIEP makes a fundamental contribution to the public debate on international politics and economic developments in the energy sector (oil, gas and electricity).

Objectives

- To serve as an independent forum for governments, non-governmental organisations, the business community, politics, the academic world, the media and other stakeholders or interested parties.
- To gather and develop information and knowledge about international political and economic developments in the energy sector on the basis of research, supported by a documentation system.
- To propagate information and knowledge about international political and economic developments in the energy sector by means of seminars, conferences, lectures, courses, publications and information releases via the media.
- To initiate discussions about current events and future developments relevant to the energy sector, energy policy, legislation and the relationship between the government and the private sector.

Research and activities

CIEP's research and activities focus on three main subject areas:

- A. Regulation of energy markets (oil, gas and electricity) in the European Union;
- B. International economic and geopolitical aspects of the oil and gas markets, mainly with respect to the security of oil and gas supply in the European Union, in the context of an increasing dependence on imported energy; and
- C. Energy and sustainable development.

The staff of the Clingendael International Energy Programme, in conjunction with the staff of the Institute at large, develops courses and training programmes on the above-mentioned themes. CIEP publications and research results are made available primarily through the CIEP website (www.clingendael.nl/ciep), which forms part of the Clingendael website.

Appendix 2 Work plan CIEP 2009-2012

ENERGY: BETWEEN A ROCK AND A HARD PLACE

THE GROWING MISMATCH BETWEEN LONG TERM ENERGY AND CLIMATE CHANGE VISIONS
AND SHORT TERM MARKET DEVELOPMENTS

Work plan CIEP 2009-2012

CIEP is predominantly a network organisation with a strong public dimension. The success and recognition of CIEP is based on the combination of certain qualities, such as its independence, the provision of timely analyses from an international economic and geopolitical perspective, a focus on pre-competitive knowledge and an integrated view on the three pillars of energy policy – the *environment*, *market regimes* and *security of energy supply*. This formula offers CIEP a unique position, not only in the Netherlands, but also internationally, especially within Europe.

Modes of operation

Forum

As an independent organisation, CIEP is able to function as a forum for the stakeholders in the energy sector. The forum function is shaped by the coordination of a variety of activities with participants and invitees from governmental agencies from different countries, the private sector, NGOs, scientists and representatives of supranational organisations, in which energy and climate change issues are discussed in an open and informal setting, typical for meetings under the Chatham House rule.

Representatives of different stakeholders groups also participate in CIEP research activities. The CIEP advisory board and contact group, with representatives from the supporting institutions, are an important part of the CIEP forum function. CIEP underpins sector-wide initiatives and facilitates meetings and conferences. The Forum function of CIEP in the Netherlands and EU is well established. Across Europe but also in Moscow and Washington, CIEP staff is involved in debates about a wide range of energy and related climate change issues.

Think-tank

As a think-tank on energy issues, CIEP operates from an international economic and geopolitical perspective. Research is characterised by an integrated approach to energy policy, a focus on pre-competitive issues and executed from the assumption that 'energy is politics'. CIEP is independent in formulating its research agenda. Results from CIEP research are intended for the public domain and published accordingly on the CIEP website. CIEP conducts research according to academic standards, but its publications are aimed at public

and policy issues. CIEP also conducts research for others, as long as the work fits within the research agenda and the results can be made public. In the capacity of a think-tank, CIEP also advises government agencies, companies and NGOs. Already well-respected in the Netherlands, CIEP is also internationally recognised as a leading knowledge organisation on a wide range of energy issues ranging from security of energy supplies, market developments and geopolitics to future fuels.

Knowledge transfer

By active transfer of knowledge, CIEP works to increase public understanding of energy and to inform the quality of public debates. In addition to research outputs, other key modes of knowledge dissemination have been through the media, short courses/modules, lectures, consultations with specific focus groups, and participation in the activities of other organisations.

With our base in the Hague, it is natural that CIEP's knowledge transfer functions will maintain a strong focus on the Netherlands, but increasingly participants from elsewhere in Europe find their way to CIEP modules and finds CIEP going to elsewhere to offer short courses and presentations. Together with EDI and other partners, CIEP will be involved in a Gas Business Master's programme.

Society

CIEP staff are involved in various councils, advisory boards and panels such as the International Gas Union's Wise Person group, the Dutch energy council, the board of WEC NL, the supervisory board of Rotterdam Clinton Climate Initiative, the editorial board European Energy Review, etc.

CIEP organisation

CIEP is a project in the Stichting Fonds Clingendael, and thus financially and organisationally separate from Institute Clingendael. Stichting Fonds has its own board and governance structure. CIEP also has an Advisory board and contact members group to ensure exchange of information with participating organisations and guard the CIEP public agenda. In content, CIEP work is related with some of the core themes of Clingendael, mostly in the geopolitical/strategic and European sphere, although Clingendael does not cover the economic approaches to these themes, which limits the overlap. In the Asia Studies programme, CIEP and Instituut Clingendael continue to cooperate in a joint project. CIEP also cooperates with other research institutions both in the Netherlands and abroad.

Research Themes and Focus in the coming period

Long term visions and short term bottlenecks

The European ambitions for a more sustainable energy system have taken shape with the Commissions proposals of 10 January 2007 (SEC) 12, 2007, and the Councils' acceptance of the main thrust of the proposals (Feb. 2007). The catchphrase '20-20-20 in 2020' (20% more energy efficiency, 20% share of sustainables in the energy mix and a 20% reduction of CO₂ emissions by 2020) reflects the Commission's ambitions to make a serious step towards a low carbon economy. These ambitions must be achieved in a European market environment, of which the contours have been further defined in the Commissions' 19 September 2007 package. At the same time, security of oil and gas supply is an important precondition for the smooth transition to a lower carbon economy. The three pillars of energy policy, price,

security and environment, must not only be integrated into one consistent policy approach but is now at the core of the proposed 'new industrial revolution'.

With the clarity on where the energy system must go in the longer term, the short and medium term problems, however, are dauntingly short of a solution. The recent publication of the IEA World Energy Outlook 2007 is more somber than it was ever before, about oil price developments, investment needs in oil and gas value chains, structure of markets, demand outpacing supply, and meeting climate targets. The emergence of new fast growing economies, such as India and China, has driven demand for fossil fuels to new heights and production has difficulty keeping up. The stresses and strains appear in all parts of the energy value chains, evidenced by both cost push and demand pull inflation. Marginal cost has increased to high levels indeed, and is expected to increase further when more marginal oils, such as from the Arctic, oil sands, oil shales, and biofuels, have to be exploited, while the pace of development of medium cost oil remains disappointing. This medium cost oil is located predominantly in OPEC countries and Russia. The income of oil producing countries is now successfully generated through the oil price rather than through selling volumes, which has increased their reluctance to invest in new production capacities. With international oil companies locked out of the medium cost oil developments by national governments, and the unlevel playing field in African developments with national companies from consumer countries such as China, only the most expensive options are left for international oil companies. Yet, these same companies are the backbone of the world oil trading system, offering their oil to the highest bidder.

At the same time, many consumers are shielded from the price developments through government subsidies, fueling demand growth in the producing countries and China. The large monetary surpluses of these countries, in oil producing countries due to the transfer of wealth as a result of higher oil prices and in China by hoarding labor productivity gains at the government/state level, imply that these countries can subsidise energy for some time to come. They command their share of resources, using both international markets and bilateral agreements to realize this. Simultaneously, oil fields are being developed with the articulated intention of generating a bilateral oil flow, rather than a flow destined for world markets, undermining the global oil trade system. The oil trade system could, if more oil is diverted away from world markets into two parallel systems, where price is no longer the only tool of distributing scarcity. Instead (geo)politics can develop into a separate tool of distribution. There is one source of new oil production that can change the current rules of the game; Iraq. Iraq has large onshore medium cost oil reserves that have not been exploited intensely. Production could increase with another 4-6 mb/d with the proper investment climate and in a situation of political stability. For the global oil market, and thus the OECD countries that are wedded to the availability of oil through the world oil trading system, it is increasingly important that this lower cost Iraqi oil becomes available in order to buy some more time to fend off the worst effects of the supply-constrained world. The political situation is however not promising. Neighbouring countries will be reluctant to share the oil income pie, particularly not when they are set on a course of further divorcing cost of production and price.

It is obvious that the transition to a less carbon intense economy is going to be far from smooth. The dilemma of course is that transiting to a different energy system can only be pursued under a certain strain of scarcity and/or geopolitical constraints, otherwise incentives to change are limited. Furthermore, solutions to one problem can easily bring forth new ones,

evidenced by the current expansion of biomass production that clashes with the stock of nature and food production.

The new but alarming tone of the IEA started with its 2005 publication, and since then the worries have increased to the point where the earlier staunch believe that markets could resolve any concerns about climate and security has been traded for a mixed approach where government intervention has gained ground. This intervention should focus on disciplining the energy system into a more efficient and low carbon direction. Yet, at the same time, the ongoing concentration of oil and gas supplies, triggers countries into favouring coal and nuclear for electricity generation for security of supply reasons. In order to meet climate policy goals, coal must be revolutionised into 'clean coal' through the rapid development of sequestration technologies, while the thin border between nuclear energy for civic and strategic use causes concerns with more countries seeking a solution for their rising electricity demand in this direction.

In the past decade, the oil and gas markets have changed from a buyers' to a sellers' market. In the past, the outlook was that eventually this process would be reversed, as happened from the mid-1980s onward and that the boom-bust cycles would continue to repeat themselves. In this thinking, the current sellers' market would in time be reversed into a buyers' market. The issue is that the price level at which the next fossil fuel buyers market might occur, is deemed to be much higher than in previous decades due to a more structural shift in costs and demand. For a complexity of reasons, geological, technical, economic and political, the consensus is now that structural supply constraints have brought the era of cheap fossil energy to an end. With traditional fossil fuel costs rising and costs of new fuels not declining fast enough (both a function of technology and the availability of the new fuels), the short and mid term outlook leaves the world with dearer energy, and no guarantee that bottlenecks in both the traditional energy markets and the new energy markets can easily be solved.

On the one hand, dearer fossil energy will reduce the cost between the 'old' and 'new' fuels and lowers the transition threshold to a low carbon economy, while on the other hand, the risks of mismatches in timing of replacing fuels and its infrastructure increase the risk of a transition crisis and the subsequent suboptimal solutions that might be pursued. The terms of availability of energy, including ownership issues, market structure, national interests, in an ever growing international market will be an important factor in shaping the future geopolitical and economic relations because energy is also power in geo-economic and geopolitical terms. Already we are witnessing more bilateral relations between producer and consumer countries in an attempt to reduce uncertainty of demand and supply. Also in the market, joint-ventures between NOC's and IOC's reflect the new organisation structure, where both national and commercial interest are newly bundled. The new structure will bring new winners and losers and is by no means a guarantee for a peaceful but competitive change to a next generation energy system. When the distribution of military power, economic power, political power and energy power is in flux, conflicts can easily derail the likelihood of an evolutionary transition.

Markets and governments

The maturity of the OECD conventional oil and gas reserves seriously undermine the options for diversification away from certain producer countries (for reasons of politically and economically instability or geopolitical reasons), while climate change policies reduce the options to diversify to coal and unconventional oil, unless larger scale carbon storage can be realised soon at reasonable costs and with manageable risks.

Yet, the path to the realisation of the low carbon economy is still long and fraught with both internal and external political and economic dilemmas. Governments and companies in the OECD will struggle with:

- the short term nature of energy markets and the longer term process of balanced change (as opposed to change as a result of a crisis) in the fuel mix;
- economic efficiency in a world market where public interests such as environmental and security externalities are not or not sufficiently priced in;
- national optimisation of energy production (f.i. depletion policies, macro-economic stability, etc.) and consumption viz. international optimisation;
- variations in prioritising public interests among countries, including among the EU member states;
- fossil energy intense development viz. sustainable development;
- rent-seeking behaviour in the fossil and sustainable energy value chain by both private companies and governments;
- competition for scarce resources viz. cooperation;
- energy diplomacy and the growing importance of energy (and water) on the foreign and security agenda;
- public viz. private ownership of the energy value chain;
- bilateral or multilateral energy markets or politicised viz. economised markets;
- structural import dependence viz. structural energy income dependence;
- negotiated climate change policies or race to the top type of policies;
- etc.

These dilemmas and others will occupy policy-makers and company managers in the next years in a world where the balance of power in the world is shifting and where national and international public interests will be redefined. The outcome of this struggle between national and international energy interests is uncertain. Already, some states have decided to take firmer control over their energy industries in an attempt to merge the political and economic interests of the state in energy, while other states attempt to break up the power of companies through regulatory controls.

The combination of long term goals for structural change of the (energy) economy on the one hand, and more emphasis on short term efficiency in the market environment is both a theoretical and practical challenge. The protection of the environment and security of supply policies are public interests that, when pursued, complicate the organisation of already incomplete (international) markets for energy. Bottlenecks in capital allocation, long lead times, the long life of infrastructure and production sites, locked-in fuel choices, but also foreign policy and market organisation orientations and high barriers to entry and exit impact on the completeness of the market for energy. But energy is also about power, the political-strategic and economic position in the world system. States without access to energy cannot develop into modern economies, nor into powerful geostrategic players. The energy sector, because it is a basic input in our economy, has always been a mixed sector where economic and political interests convene. The low carbon economy is both about genuine concerns about the impact of CO₂ emissions on the world climate system and about the reduction of structural import dependency, but it is also about getting the better of rival states. Political competition is concerned with a different type of efficiency than market efficiency, and market efficiency is less concerned with long term environmental efficiency. In addition, there is also a struggle among consumer countries for scarce energy resources. Already we see

the emergence of a bilateral or national economy driven trade and investment system that could lower the liquidity of world oil markets.

As much as governments are challenged to safeguard the public goods, environment and energy security, companies will be challenged to internalise the changing political and economic context of energy and the environment, and transform these in commercially attractive company strategies and products. Much will depend on the governments' ability to define the market space and ability to create, amidst change, sufficient investor certainty to invest. The dilemma for existing companies is to respond to both the short term demands of capital markets (and activist investors) and the long term government demands of moving into a low carbon economy. OECD governments will employ a mixture of incentive based policies with increasing norms for energy and environmental efficiency. It is unclear whether these norms and incentives can and will be implemented throughout the various energy value chains. This depends on the level of consensus and cooperation (or the lack thereof) in the international political arena. At the same time, companies are bound by policies of their host governments (and their specific national interests and position in the balance of power) and international competition. It is likely that boundaries between certain sectors of the economy will fade (in agriculture for instance) and that new competitors will encroach on the vested interests of traditional energy companies. Loosening the ties between natural endowment and fuels of choice can change the distribution of rents among companies and governments. Both companies and governments are not only addicted to oil and gas but also to the economic rents that they can capture. It is yet uncertain if the new fuels will be as attractive from a rent-seeking point of view.

The changing market structure of oil and gas markets, both as a result of demand from emerging economies and new economic and energy strategies of governments, will greatly impact the organisation of the energy sector and its players. Consolidation, mergers and acquisitions, break ups of traditional companies and reorganising them in a different setting in the value chain belong to a period of structural market change. Companies will face many dilemmas of which the current dilemma of access to energy resources and markets is but one. The biggest challenge for existing companies will be to select fuels, technologies and government alliances.

Challenges to the CIEP agenda for 2009-2012

The challenge for CIEP will be to understand the underlying political and economic forces that shape the future government and company strategies. The three themes of research (European energy markets; security of supply and sustainable development) offer sufficient legroom to be the foundation for another period of research and activities under these headings. Like in the previous periods, shifts in emphasis within these three themes on a year to year basis have allowed CIEP to both develop a broad knowledge base as well as an ability to change gear within and between themes. In the coming period, we expect to be involved in fuel mix choice discussions, forcing us to include more research on coal and nuclear, but also on biomass, in addition to oil and gas. We also expect that energy trading routes will become more important and that policy orientations of major consuming and producing countries will shape both the energy debate and the environmental negotiations. The work on Europe, Russia, China, other Asian countries, the Caspian Sea region, the Middle East and increasingly the US, will be expanded to include developments in Africa and South America.

In the period 2009-2012, new international climate negotiations but also supply constraints will shape the debates and policies. The market structure will have undergone profound

changes as the rate of reserve replacement of international oil and gas companies and market access of national companies will impact the strategies. CIEP should therefore not only focus on the changing context of energy markets and government policies but also invest in understanding company strategies. The aim is thus to develop a more complete understanding of the developments in the international energy and environment sector.

Research Themes

Theme A Development of European Energy Markets

The European Union has been involved in a long process of liberalisation (and privatisation). Liberalisation was, however, not the panacea to solve all the energy policymakers problems, such as the public interests security of supply and environmental problems. The switch from a buyers to a sellers market challenged the political promise of policy makers that energy prices would decline as a result efficiency gains. Moreover, the regulatory burden and the cost of organisational change pushed these gains elsewhere in the economy, while investor uncertainty resulted in bottlenecks in the system. Also, although many risks were privatised to the level of the consumer, information and instruments to reduce these risks are wanting, creating a backlash in some countries to not 'go the whole nine yards' in liberalisation and instead promote national champions to improve the negotiation position with large third country transport and supplier companies. Despite the much heralded advantages of liberalisation, it was also clear that governments could never leave fuel choice to the market alone, nor to the Commission as evidenced by the Chairman's conclusions of March 2006, if they were serious about their environmental and other policies. The 20-20-20 policy the European Commission is advocating has a profound impact on the market space and available companies choices, while the nascent external energy policy has impacted the energy relationship with Russia and other producers.

CIEP will focus both on the development of the internal energy market, and increasingly also the markets for alternative fuels, also in the context of world markets.

B. The international economic and geopolitical aspects of energy markets, mainly with respect to the security of energy supply in the European Union, in the context of an increasing dependence on imported energy.

In the next 25 years, the import dependency of the European Union will continue to increase, while at the same time the supply of oil and gas on the international market will become more concentrated. There will be similar developments in the United States and Asia. Competition for oil and gas will intensify, with consequences for the political and economic relations with these regions. The long term goal of moving away from fossil fuels (and their import dependency), and the short term supply bottlenecks and higher prices will seriously challenge the security of supply agenda.

Security of energy supply is increasingly becoming an integral part of the foreign policy agenda, also in the EU, although development of these policies (and external energy policy) is excruciatingly slow. The member states have difficulty coping with their asymmetric exposure to security of oil and gas supply risks, and are pursuing their own national policies. The policy toolbox of the EU and the individual member states remains incomplete to deal with the new challenges, such as instability in key producing regions and competition for resources with main consumer countries. Europe's soft power is often trumped by countries such as China. Furthermore, the existence of asymmetric risks may require a much more

regionalised tailor-made response, which could run counter to the attempts of the Commission to develop common tools and one market.

In a supply-constrained world, policy competition and strategic relations can easily undermine the current international trade and investment system. Geopolitical and geo-economic competition to divide international wealth and the resources to produce this wealth pose a challenge to the organization of the international system. CIEP's research on security of energy supply can be best posed in terms of the recently published Shell scenarios: can the world opt for Blueprint or does the world of Blueprint either run through Scramble or is unattainable in the current international setting? This question also ties in the third research theme, the low carbon economy.

Theme C: Towards a Low-Carbon Economy

Alarming UNFCCC reports, Al Gore's film "An Inconvenient Truth", Hurricane Katrina: these are just a few examples of the many events that have recently drawn the world's attention to the dangers and urgency of the climate change problem. The present fossil fuel-based global energy sector, with its large CO₂ emissions, is one of the key identified causes of global warming. There is a growing international consensus, particularly among OECD countries, that a transition to a low-carbon energy sector within several decades is imperative, if only to make room for Asia's economic development. This insight is also fraught with diverging interests, because economic wealth also generates international political power, and leadership and/or persuasion power is lacking to move the world into a more sustainable direction.

CIEP is not involved with climate change science as such, but rather aims to examine the international political and economic drivers, or the lack thereof, and consequences of the envisaged global energy transition. Questions relevant to CIEP's research into energy transition are, for instance: What does a low-carbon energy transition mean for international relations with and between oil and gas producing countries? What are the links between countries' negotiating positions on climate change issues and the structures of their energy sectors and how will the development of new energy technologies in the fields of renewables and energy efficiency affect existing energy relations between countries?

There is much more to the question of energy transition than climate change alone. At present and predicted future energy demand levels, the eventual depletion of fossil fuels is certain. Nevertheless, its exact timing and international consequences are still being heavily debated. How many new reserves will be found? Will global demand for energy continue to grow? Will the depletion of fossil fuels coincide with international climate change measures or not, and how will this affect international relations, for instance with main energy producing countries or with competing consuming countries, or how will it impact the current trade and investment system? These questions, as well, are relevant to CIEP's research into a global energy transition.

Appendix 3: 2008 external lectures by CIEP Staff

11 December 2008

Dagvoorzitter op congres van de nederlandse waterstofvereniging (NVW)

Dick de Jong, Arnhem

10 December 2008

EU gas markets and Russia

Ernst & Young, Amsterdam

Coby van der Linde

1 December 2008

lecture on Global Energy Issues

Jacques de Jong , Eneco Environmental Dinners, Zoetermeer

25 November 2008

European Autumn Gas Conference

Coby van der Linde, Como, Italy

24 November 2008

IGU Ministerial Gas Conference

Coby van der Linde, Vienna

17 November 2008

International Gas Markets

Dick de Jong, CE all staff meeting, Delft

17-21 November 2008

Energy Regulators Regional Association (ERRA)

Jacques de Jong, ERRA Gas Week, lectures en course director, Budapest

18 November 2008

Gastcollege Universiteit Utrecht

Coby van der Linde, Utrecht

13 November 2008

Persbijeekomst Gasopslag TAQA

Coby van der Linde, Alkmaar

10-12 November 2008

3rd Energy Market Package

Jacques de Jong, Wilton Park Conference and workshop energy & climate, Wiston House, UK

6 November 2008

Workshop on the Impact of Climate Change on Transatlantic Relations

Coby van der Linde, Washington, U.S.

5 November 2008

Speech Dick de Jong voor 10 jaar vestiging van Statkraft in EU, Amsterdam

4 November 2008

NFIA Conference

Coby van der Linde, The Hague

4 November 2008

Resources scarcity

Lucia van Geuns, NATO defence college, Rome

30 October 2008

Farewell workshop Pippo Ranci

Jacques de Jong, Florence School of Regulation (FSR), Florence

29 October 2008

Internationale Energiemarkten

Lucia van Geuns, lezing Rotary Den Haag Noord, Den Haag

29 October 2008

Noordnederlandse energie regio in Europa

Dick de Jong voor SNN/ energy Valley conferentie, Groningen

27 October 2008

Restructuring energy industries

Jacques de Jong , Florence School of Regulation (FSR), Florence

27 October 2008

Symposium Eerste Kamer EU/Rusland

Coby van der Linde, The Hague

20 October 2008

Lecture University of Utrecht

Coby van der Linde

20/21 October 2008

3rd Energy Market Package, the right song?'

Jacques de Jong, Energija Conference, Maribor (Slovenië)

18 October 2008

Oil lecture Basilicata, Italy

Coby van der Linde

14 October 2008

Developments in the international energy markets

Lucia van Geuns, TU Delft course 'Offshore engineering', Delft

13 October 2008

NGIZ lezing

Coby van der Linde, Rotterdam

9 October 2008

EU external energy policy

SIEPS, Stockholm

- 8 Oktober 2008
Offsite Natural Resources, ING
Coby van der Linde, Amsterdam
- 8 October 2009
EU Energy Market package & gas supply security
Jacques de Jong, Sparks & Flames, Amsterdam
- 7 October 2008
International Energymarkets and CIEP
Lucia van Geuns, Senter Novem/Aramco meeting,
Utrecht
- 7 October 2008
Business meeting Haarlemmermeer
Coby van der Linde
- 3 October 2008
Bioenergy
Dick de Jong, panel discussie op ECN conferentie,
Driebergen
- 3 October 2008
High oil prices: a new reality?!
Lucia van Geuns, TUDelft Offshore Engineering
Conference, Delft
- 2 October 2008
The Dutch Fiscal Upstream Regime
Lucia van Geuns, SPE S. Northsea gas workshop,
Scheveningen
- 2 October 2008
CESSA-project conferentie
Jacques de Jong, Brussel
- 25 September 2008
Eurogas Annual Conference
Coby van der Linde, Brussels
- 25 September 2008
International Energy markets and sustainability
Lucia van Geuns, Roundtable Freedom House,
Budapest
- 24 September 2008
Global energy market trends
Jacques de Jong, IRS-conference legal issues in
energy markets, Den Haag
- 24 September 2008
International oil market
CID, The Hague
Coby van der Linde
- 23 September 2008
Energy Markets
Lucia van Geuns, Master Energy and Environment
Law, Catholic University of Leuven, Leuven,
Belgium
- 20 September 2008
International energy markets
Curacao
Coby van der Linde
- 19 September 2008
Oliemarkten
Lucia van Geuns, ANWB symposium 125 jaar,
Scheveningen
- 19 September 2008
What is driving our world energy system?
Lucia van Geuns, UGV symposium, Utrecht
- 12/13 September 2008
Cambridge University workshop honouring David
Newbery,
Jacques de Jong, Cambridge
- 10 September 2008
Gasmarkten
Lucia van Geuns, NUON seminar Energie en
Strategy, Zeist
- 10 September 2008
SPE Workshop Young Professionals,
Coby van der Linde, Amsterdam
- 8 September 2008
West Africa and Oil
Lucia van Geuns, BZ conference Africa
ambassadors BZ, Utrecht
- 2 September 2008
Lecture VOPAK
Coby van der Linde, Lemmer
- 15-17 July 2008
Energy Regulators Regional Association (ERRA)
Jacques de Jong, ERRA Gas Week, lectures en
course director, Budapest
- 16 July 2008
NATO & Energy security: In search of added value
Warner ten Kate, The European International
Modelled United Nations (TEIMUN) 2009, Den
Haag
- 11 July 2008
Solana Taskforce
Coby van der Linde, Paris

- 10 July 2008
Internationale energiemarkten
Lucia van Geuns, medewerkers 2^{de} kamer, Den Haag
- 1 July 2008
Ontwikkelingen op de internationale energiemarkt
Lucia van Geuns, Mercurius, Den Haag
- 23 June 2008
Restructuring energy industries
Jacques de Jong, Florence School of Regulation (FSR), Florence
- 19 June 2008
China and energy
Lucia van Geuns, Seminar Nyenrode, Breukelen
- 19 June 2008
The social dimension
Jacques de Jong, FSR workshop energy & sustainability issues, Florence
- 16 June 2008
Insight conference Moscow
Coby van der Linde
- 16-18 June 2008
Energy Regulators Regional Association (ERRA)
Jacques de Jong, ERRA Gas Week, lectures en course director, Budapest
- 12/13 June 2008
standards for EU energy supply security
Jacques de Jong, CESSA Conference on global energy security issues, Florence
- 10 June 2008
Intensive EU policy training; EU energy policy
Jacques de Jong, Breughel College, Brugge
- 2 June 2008
Global energy policy issues
Jacques de Jong, NL-France Samenwerkingsraad, seminar, Paris
- 27 May 2008
Strategic Energy Review, European Commission
Coby van der Linde, Brussels
- 15 May 2008
Masterclass 'Energie onderzoek'
Lucia van Geuns, DeltaVisie conference, Rotterdam
- 13/14 May 2008
EU energy supply security policies
Jacques de Jong, Wilton Park Conference, Bucharest
- 13 May 2008
Resources scarcity
Lucia van Geuns, NATO defence college, Rome
- 5 May 2008
EU external policy
European Defence Organisation, Paris
Coby van der Linde
- 25 April 2008
ERRA Core faculty Meeting
Jacques de Jong, Budapest
- 23 April 2008
Energy and geopolitics
Lucia van Geuns, FOI-IES Symposium 'Geopolitics of Climate Change', Brussel
- 17 April 2008
Energy Solutions Nyenrode
Coby van der Linde, Hoevelaken
- 16/17 April 2008
BP Sustainability Program & Madrid Forum,
Jacques de Jong, workshop participation and moderation, Madrid
- 16 April 2008
Saybolt Lecture
Coby van der Linde, Noordwijk
- 14/15 April 2008
CESSA seminar on "Hydrogen & energy supply security"
Jacques de Jong, participation & moderation, Madrid
- 15 April 2008
Sustainable energy sources
Lucia van Geuns, symposium TU Eindhoven
- 11 April 2008
Energiebeleid
Lucia van Geuns, GAIA symposium Klimaatverandering, Leiden
- 9 April 2008
International energy markets
Roosevelt Academy
Coby van der Linde
- 1 April 2008
Toekomstige energievoorziening
Lucia van Geuns, college ISS/UvA, Amsterdam
- 1 April 2008
Energy and Security
Lucia van Geuns, GSCP, training course Security Policies, Geneva

31 March 2008
EU energy markets & energy industries
Jacques de Jong, Coby van der Linde, training COR
van Essent, Wolfheze

20 March 2008
College: Energie en veiligheid
Lucia van Geuns, TU Eindhoven

17 March 2008
lecture on EU gas market regulation
Jacques de Jong, Energy Delta Institute (EDI), Gas
Liberalisation & Regulation Course, Groningen

6 March 2008
RISK Congres
Coby van der Linde, Groningen

3 March 2008
lecture on gas market regulatory issues
Jacques de Jong, Energy Delta Institute (EDI),
Natural Gas Strategy Course, Groningen

28 February 2008
Emissie handel
Dick de Jong, panel discussie CREDES Congres
van economie studenten, Groningen

28 February 2008
Workshop What Price Energy Transformation
Coby van der Linde, Berlin

25 February 2008
EU energy security
NATO, Brussels
Coby van der Linde

18 February 2008
Internationale oliemarkten
Lucia van Geuns, Ned Maatschappij voor
Nijverheid en Handel, Amersfoort

31 January 2008
IFRI energy conference
Coby van der Linde, Brussels

30 January 2008
European Parliament hearing
Brussels
Coby van der Linde

29 January 2008
Geopolitics, Big Oil and the 'New Reality'
Lucia van Geuns, KNGMG/SPE afd. Noord, Assen

17 January 2008
Energy, Security and Geopolitics
Lucia van Geuns, HCSS/CIEP NATO conference,
Brussel

9-11 January 2008
The view of the EU Regulator
Jacques de Jong, Mid West Energy Efficiency
Conference, Chicago, USA

Appendix 4: Energy lectures by CIEP staff for Clingendael courses

- 27 November 2008
Cursus Internationale politiek
Lucia van Geuns
- 18 November 2008
Cursus Internationale politiek
Lucia van Geuns, Stephan Slingerland
- 14 November 2008
Cursus Internationale Veiligheid
Lucia van Geuns; Warner ten Kate
- 14 November 2008
Mid career diplomaten Indonesie
Warner ten Kate, Stijn van den Heuvel
- 9 October 2008
Leergang Buitenlandse Betrekkingen
Lucia van Geuns
- 8 October 2008
Matra training: How to operate in Europe
Lucia van Geuns, Stephan Slingerland
- 23 September 2008
Jnr diplomaten East Europe
Stijn van den Heuvel, Jacques de Jong
- 16 September 2008
Hogere Defensie Vorming
Lucia van Geuns; Warner ten Kate
- 5 September 2008
Cursus diplomaten S. Sudan
Lucia van Geuns
- 23 Juni 2008
Leergang Marocco diplomaten
Lucia van Geuns, Stijn van den Heuvel
- 6 Juni 2008
Leergang Centraal-Aziaten (LCA)
Lucia van Geuns, Stijn van den Heuvel
- 29 Mei 2008
Leergang Sudan SPLM and government
Lucia van Geuns, Jan-Hein Chrisstoffels
- 6-9 Mei 2008
Cursus Bulgaarse diplomaten
Lucia van Geuns, Jacques de Jong, Stephan Slingerland
- 18 April 2008
Cursus Int. Veiligheid, thema Azie
Jan-Hein Chrisstoffels
- 8 April 2008
Leergang ZO Europa LZOD
Lucia van Geuns, Stephan Slingerland
- 1 April 2008
Leergang Diplomaten Indonesie
Jan-Hein Chrisstoffels, Stijn van den Heuvel
- 4 Maart 2008
Cursus Internationale Veiligheid
Lucia van Geuns, Jan-Hein Chrisstoffels, Coby van der Linde
- 5 en 21 Februari 2008
Leergang Topmanagement Defensie
Coby van der Linde
- 18 Januari 2008
Leergang diplomaten Iraq
Lucia van Geuns

